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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,140	10/09/2001	Ralph Thomas Hoctor	RD-27,855	7372

6147 7590 04/22/2004

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
SCHENECTADY, NY 12301-0008

EXAMINER	
NGUYEN, JOSEPH D	
ART UNIT	**PAPER NUMBER**
2683	4

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,140	HOCTOR ET AL.	
	Examiner	Art Unit	
	Joseph D Nguyen	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/09/04* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 2-3, 7-12, and 14-17 objected to because of the following informalities:

Regarding claim 2-3, 7-12, and 14-17, the abbreviation UWB, TR-UWB, and TR/DH UWB need to be defined. Appropriate correction is required.

Regarding claim 16, this claim is depending on claim 13; the term "said UWB signal" is not discloses in claim 13. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Forssen et al.

Regarding claim 1, Forssen et al. discloses a method for determining a location of an object within an area of interest (abstract, fig. 1), comprising:

a) transmitting an RF signal from the object to at least three receivers (abstract, fig. 5-6, col. 8 lines 56-67);

b) transmitting a signal from at least one beacon transmitter to the at least three receivers, said at least one beacon transmitter being at a known location (abstract, fig. 5-6, col. 8 lines 56-67);

c) calculating, at each of the at least three receivers, time difference of arrival information based on the signal from said at least one beacon transmitter and the RF signal transmitted from the object (abstract, fig. 5-6, col. 4 line 1 thru col. 6 line 26); and

d) determining a location of the object within said area of interest based on said time difference of arrival information (abstract, fig. 5-6, col. 4 line 1 thru col. 6 line 26).

Regarding claim 13, Forssen et al. discloses a system for determining a location of an object within an area of interest (abstract, fig. 1, and 6), comprising:

a) a mobile device carried by said object (abstract, fig. 1, 6, col. 8 line 56 thru col. 9 line 15, and col. 11 line 56 thru col. 12 line 19), said mobile device including a transmitter for transmitting an RF signal (fig. 1, 6, col. 3 line 35 thru col. 4 line 57);

b) at least one beacon transmitter at a known location for transmitting a beacon signal (abstract, fig. 1, 6, col. 11 line 56 thru col. 12 line 29);

c) at least three base stations within said area of interest (fig. 1, 6), each of said at least three base stations comprising a detector for detecting the RF signal transmitted from said mobile device, and further comprising a processor for deriving time difference of arrival information based on the beacon signal and the RF signal (fig. 2, col. 9 line 16 thru col. 10 line 13); and

d) a controller for determining the location of the object within said area of interest based on the time difference of arrival information calculated by each of the three base stations (abstract, fig. 2-5, col. 8 line 56 thru col. 9 line 15).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2-12, and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forssen et al. (6,031,490) in view of Richards et al. (6,466,125).

Regarding claim 2, Forssen et al. further discloses the method of claim 1, wherein said RF signal comprises a frequency hopping. However, Forssen et al. does not specifically disclose RF signal comprises a frequency UWB signal.

Richards et al. teaches the RF signal comprises a frequency UWB signal (col. 4 line 4-8). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the Forssen et al. system with the teaching of Richards et al. of the RF signal comprises a frequency UWB in order to determine the location of the patient in the area of interest.

Regarding claim 3, Richards et al. further discloses the method of claim 2, wherein said UWB signal comprises a TR-UWB signal (col. 31 line 21 thru col. 37 line 25).

Regarding claim 4, Forssen et al. further discloses the method of claim 1 wherein the step of determining a location of the object comprises using a maximum likelihood algorithm (col. 9 line 43 thru col. 10 line 13).

Regarding claim 5. Forssen et al. further discloses the method of claim 1, further comprising:

a) transmitting signals from a plurality of beacon transmitters to the at least three receivers, said plurality of beacon transmitters each being at a known location, each of the beacon transmitters having an independent local clock (fig. 5-6, col. 3 line 37 thru col. 6 line 26, col. 8 line 56 thru col. 9 line 15);

b) calculating, at each of the at least three receivers, a plurality of time difference of arrival data based on respective signals from said plurality of beacon transmitters and the RF signal transmitted from the object (abstract, fig. 5-6, col. 4 line 1 thru col. 6 line 26); and

c) determining the location of the object within said area of interest based on said time difference of arrival data from said at least three receivers (abstract, fig. 5-6, col. 4 line 1 thru col. 6 line 26).

Regarding claim 6, Forssen et al. further discloses the method of claim 5 wherein the step of determining the location of the object comprises using a maximum likelihood algorithm (fig. 5-6).

Regarding claim 7, Richards et al. further discloses the method of claim 2, wherein said UWB signal comprises a TR/DH UWB signal (col. 11 line 8-67); and wherein the step of transmitting a TR/DH UWB signal comprises generating pairs of

pulses separated by a time interval D and encoding by relative polarity of pulses of said pairs (col. 11 line 8-67); and wherein the step of calculating time difference of arrival information comprises delaying received signals by the time interval D (col. 13 line 65 thru col. 14 line 11).

Regarding claim 8, Richards et al. further discloses the method of claim 7 wherein the step of transmitting further comprises generating the pairs of pulses at a pulse repetition rate which is variable in order to shape a spectrum of transmission (fig. 4, col. 6 line 17-35).

Regarding claim 9, Richards et al. further discloses the method of claim 7 wherein TR/DH UWB signals are transmitted from a plurality of objects, each TR/DH UWB signal having a different time interval D between pulses of said pairs (col. 6 line 17 thru col. 7 line 38).

Regarding claim 10, Richards et al. further discloses the method of claim 2, wherein the step of transmitting the UWB signal is performed by a transmitter carried by a patient, and wherein said area of interest is a medical facility (abstract).

Regarding claim 11, Richards et al. further discloses the method of claim 9, wherein the step of transmitting the UWB signal further includes transmitting medical information of said patient with the UWB signal (fig. 12, col. 21 lines 53-63).

Regarding claim 12, Richards et al. further disclose the method of claim 2, wherein the step of transmitting the UWB signal is performed by a transmitter attached to patient, and wherein said area of interest is a medical facility (abstract, fig. 10-13, col. 19 lines 56-64). However, Richards et al. does not specifically disclose the

transmitter attached to equipment. But, it would have been obvious to one skilled in the art that the device can be used to attach to the equipment in order to monitor the equipment from removing.

Regarding claim 14, this claim is rejected for the same reason as set forth in claim 2.

Regarding claim 15, this claim is rejected for the same reason as set forth in claim 3.

Regarding claim 16, Forssen et al. further discloses the system of claim 13, wherein said UWB signal comprises a TR/DH UWB signal, and said detector comprises a pulse-pair correlator (col. 6 lines 9-63).

Regarding claim 17, this claim is rejected for the same reason as set forth in claim 8.

Regarding claim 18, Forssen et al. further discloses the system of claim 13 wherein a plurality of mobile devices transmit RF signals to the at least three base stations (fig. 1-6, col. 8 line 56 thru col. 12 line 18), each of the three base stations comprising a plurality of detectors for detecting the RF signals and deriving time difference of arrival information based on the beacon signal and the RF signals, said controller determining locations of said objects based on said time difference of arrival information (abstract, fig. 2, col. 9 line 43 thru col. 10 line 13).

Regarding claim 19, this claim is rejected for the same reason as set forth in claim 10.

Regarding claim 20, this claim is rejected for the same reason as set forth in claim 11.

Regarding claim 21, this claim is rejected for the same reason as set forth in claim 12.

6. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

703 308-9051, (for formal communication intended for entry)

Or:

(703) 305-9509 (for informal or draft communications, please label "PROPOSED" OR "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA. Sixth floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D Nguyen whose telephone number is (703) 605-1301. The examiner can normally be reached on 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (703) 308-5318. The fax phone numbers

for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Joseph Nguyen

Apr. 17, 2004

WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600